

Amendments to the Claims

1. (Currently amended) A rotor in a rotating electrical machine comprising:

permanent magnets embedded in the a rotor core, and

magnetic flux short circuit preventive holes extending from the circumferential ends of said permanent magnets constituting magnetic poles to the vicinity of an outer periphery of said rotor core;

said rotor being a rotor with said embedded permanent magnets further characterized in that wherein,

when the an axis extending in the a center direction of the a magnetic pole of said rotor is assumed as a d-axis, and the an axis extending in the an interpolar direction 90 degrees deviated from the center direction of said magnetic pole of said rotor in terms of electric angle is assumed as a q-axis,

the a radial distance between the an outer periphery of said magnetic flux short circuit preventive hole and that of said rotor core is increased gradually in conformity to the approach to said d-axis side from said q-axis.

2. (Currently amended) A rotor in a rotating electrical machine comprising:

permanent magnets embedded in the a rotor core, and

magnetic flux short circuit preventive holes extending from the circumferential ends of said permanent magnets constituting magnetic poles to the vicinity of an outer periphery of said rotor core;

said rotor being a rotor with said embedded permanent magnets further characterized in that wherein,

when the an axis extending in the a center direction of the a magnetic pole of said rotor is assumed as d-axis, and the an axis extending in the an interpolar direction 90 degrees deviated from the center direction of said magnetic pole of said rotor in terms of electric angle is assumed as q-axis,

an angle with respect to the rotor center formed between the ends of two adjacent magnetic flux short circuit preventive holes on the said d-axis side is smaller than the an angle formed by the an outer periphery of one of said permanent magnet magnets with respect to the rotor center, and

the a radial distance between the an outer periphery of said magnetic flux short circuit preventive hole and that of said rotor core is increased gradually in conformity to the approach to said d-axis side from said q-axis.

3. (Currently amended) A rotor with embedded permanent magnets according to Claim 1 or 2 characterized in that the wherein a radial length of said magnetic flux short circuit preventive holes is decreased gradually in conformity to the approach to said d-axis side from said q-axis.

4. (Currently amended) A rotor with embedded permanent magnets according to Claim 3 characterized in that, wherein when the radial distance between the outer periphery of said magnetic flux short circuit preventive holes and that of said rotor core is assumed as distance "a" closer to the q-axis, and distance "b" closer to the d-axis, the ratio of a to b is about 1 to 3 or 1 to 4.

5. (Currently amended) A rotor with embedded permanent magnets according to Claim 4 characterized in that wherein the permanent magnet embedded in said rotor core is a flat plate magnet.

6. (Currently amended) A rotor with embedded permanent magnets according to Claim 4 characterized in that wherein the permanent magnet embedded in said rotor core

is designed in a concave arch-shaped form with respect to ~~the an~~ outer periphery of the rotor.

7. (Currently amended) A rotor with embedded permanent magnets according to Claim 4 characterized in that wherein the permanent magnet embedded in said rotor core is designed in a convex arch-shaped form with respect to ~~the an~~ outer periphery of the rotor.

8. (Currently amended) A rotor with embedded permanent magnets according to Claim 4 characterized in that wherein the permanent magnet embedded in said rotor core is designed in a V shape in each magnetic pole.

9. (Currently amended) A rotor with embedded permanent magnets according to Claim 8 characterized in that wherein a non-magnetic substance is inserted in said magnetic flux short circuit preventive ~~hole~~ holes.

10. (Currently amended) A rotating electrical machine equipped with a rotor comprising:

permanent magnets embedded in ~~the a~~ rotor core, and
magnetic flux short circuit preventive holes extending from ~~the~~ circumferential ends of said permanent magnets constituting magnetic poles to the vicinity of an outer periphery of said rotor core;

~~said rotating electrical machine further characterized in that~~ wherein said magnetic flux short circuit preventive ~~hole is~~ holes are formed in such a way that ~~the a~~ radial distance between ~~the an~~ outer periphery of said each magnetic flux short circuit preventive hole and that of said rotor core is increased gradually in conformity to the approach to the pole poles from an interpolar position.

11. (Currently amended) A rotating electrical machine equipped with a rotor comprising:

permanent magnets embedded in ~~the~~ a rotor core, and

magnetic flux short circuit preventive holes extending from the circumferential ends of said permanent magnets constituting magnetic poles to the vicinity of an outer periphery of said rotor core;

~~said rotating electrical machine further characterized in that wherein~~ said magnetic flux short circuit preventive hole is holes are formed in such a way that ~~the~~ a radial distance between ~~the~~ an outer periphery of ~~said~~ each magnetic flux short circuit preventive hole and that of said rotor core is increased gradually in conformity to the approach to the pole poles from an interpolar position; and

an angle with respect to the rotor center formed between ~~the~~ ends of two adjacent magnetic flux short circuit preventive holes on the interpolar side is smaller than ~~the~~ an angle formed by ~~the~~ an outer periphery of one of said permanent magnet magnets with respect to the rotor center.

12. (New) A rotor in a rotating electrical machine comprising:

permanent magnets embedded in a rotor core, and

magnetic flux short circuit preventive holes extending from circumferential ends of said permanent magnets constituting magnetic poles to the vicinity of an outer periphery of said rotor core;

wherein when an axis extending in a center direction of a magnetic pole of said rotor is assumed as a d-axis, and an axis extending in an interpolar direction 90 degrees deviated from the center direction of said magnetic pole of said rotor in terms of electric angle is assumed as a q-axis,

a radial length of said magnetic flux short circuit preventive holes is decreased gradually in conformity to the approach to said d-axis side from said q-axis,

a radial distance between an outer periphery of said magnetic flux short circuit preventive hole and that of said rotor core is increased gradually in conformity to the approach to said d-axis side from said q-axis, and

when the radial distance between the outer periphery of said magnetic flux short circuit preventive holes and that of said rotor core is distance "a" closer to the q-axis, and distance "b" closer to the d-axis, the ratio of a to b is about 1 to 3 or 1 to 4.

13. (New) A rotor in a rotating electrical machine comprising:

permanent magnets embedded in a rotor core, and

magnetic flux short circuit preventive holes extending from circumferential ends of said permanent magnets constituting magnetic poles to the vicinity of an outer periphery of said rotor core;

wherein when an axis extending in a center direction of a magnetic pole of said rotor is assumed as a d-axis, and an axis extending in an interpolar direction 90 degrees deviated from the center direction of said magnetic pole of said rotor in terms of electric angle is assumed as a q-axis,

an angle with respect to the rotor center formed between ends of two adjacent magnetic flux short circuit preventive holes on said d-axis side is smaller than an angle formed by an outer periphery of one of said permanent magnets with respect to the rotor center,

a radial length of said magnetic flux short circuit preventive holes is decreased gradually in conformity to the approach to said d-axis side from said q-axis,

a radial distance between an outer periphery of said magnetic flux short circuit preventive hole and that of said rotor core is increased gradually in conformity to the approach to said d-axis side from said q-axis, and

when the radial distance between the outer periphery of said magnetic flux short circuit preventive holes and that of said rotor core is distance a closer to the q-axis, and distance b closer to the d-axis, the ratio of a to b is about 1 to 3 or 1 to 4.